

Newsletter 242 BIG Little Science Centre September 2013

BIG Science

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Gordon Gore Photo

B-100 High Jinks? 'Good Morning Kamloops' listeners may have been a bit confused on Thursday morning, September 5. **Steve Ayres** was communicating with **Cheryl Blackwell**, but the Voice Changer at the **BIG Little Science Centre** distorted his voice. Our Executive Director **Gord Stewart** was having great difficulty keeping a straight face (and voice), as Steve spoke with Cheryl and their radio listeners.

BIGScience

This Newsletter is a publication of **BIG Little Science Centre Society** Box 882 Station Main Kamloops BC V2C 5M8

New Location: 655 Holt Street Kamloops BC V2B 5G2 Website <http://blscs.org>

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This Newsletter is received by more than 1,200 readers.

Back issues of **BIGScience** can be viewed at <http://www.blscs.org/Downloads/Newsletters/>

The **BIG Little Science Centre** is open to the public at these times:

Tuesday to Saturday 10:00 AM to 4:00 PM

CLOSED SUNDAYS and HOLIDAYS

Phone: 250 554 2572 **E-mail** Gord@blscs.org or Susan@blscs.org

A family membership is \$60.00/year. An individual membership is \$45.00/year. A family membership consists of five directly related people. (This includes any combination of grandparents, parents and children). Individual day rates are:

Adults \$6 Seniors \$4 Youth \$3 Family \$15.

Adults – ages 16 to 59 Seniors – ages 60+ Youth – ages 6 to 15

Visit our website blscs.org for more details on the benefits of membership.

Upcoming Activities at BIG Little Science Centre September and October, 2013

Our NEW LOCATION is at 655 Holt Street, in the former Twin Rivers / Happyvale School.

Saturday Shows and Activities for September and October

Saturday, September 7: Air Pressure Show at 11am and at 1:30pm

Saturday, September 14: Magnetism Show at 11am and at 1:30pm

Saturday, September 14: Children's Art Festival in Riverside Park

Look for the BIG Little Science Centre booth and make a colourful butterfly using fun science.

Saturday, September 21: Chemical Reaction Activities at 11am and at 1:30pm

Saturday, September 28: Light and Colour Show at 11am and at 1:30pm

Saturday, October 5: Air Pressure Show at 11am and at 1:30pm

Saturday, October 12: Colour Mixing Activities at 11am and at 1:30pm

Saturday, October 19: Fun with Bubbles at 11am and at 1:30pm

Saturday, October 26: Dinosaur Discovery Day; activities all day with a Dinosaur Talk at 1:30pm

Saturday, November 2: Exploring Electricity Activities at 11am and at 1:30pm

Contact Susan Hammond, Assistant Operator for more information: <susan@blscs.org>

How Things Work at the BIG Little Science Centre

Gordon R. Gore

The Human Battery



The 'human battery' is actually a chemical cell, with one electrode made of copper and the other made of aluminium. Two different metals separated by a conducting liquid produce a voltage between the two metal electrodes. When a person places one hand on the copper and one hand on the aluminium, his/her body completes a circuit and, because of the voltage between the two metals, a current exists. The current is greater if one's hands are moist. A sensitive meter detects the current going through your body.

The Repelling Magnets



Under all that black tape is a pair of neodymium magnets, arranged with like poles facing each other. These are very strong magnets, and it is a real challenge to make the two ends of the magnets meet 'head-on'. This display is a **BIG Little Science Centre** classic, and has been a visitor favourite for many years.

(An Excerpt from *Science 9 Electricity*, by Gordon Gore)

(An Excerpt from *Science 9 Electricity*, by Gordon Gore)

Purpose: To experiment with two different ways of placing a charge on an object.



Figure 1

Part 1 Charging by Conduction

When you charge an object by touching it with another charged object, so that electrons can be conducted directly to or from it, you are charging it by **conduction**.

Procedure

1. Set two aluminum pop cans on or in Styrofoam cups, as in **Figure 1**. (Styrofoam is an excellent insulator, so it will keep any static charge you place on the cans from escaping to the bench.)
2. Place a **negative charge** on one of the cans as follows:
 - (a) Rub a vinyl strip with wool or fur. You may hear a crackling sound if the vinyl is being charged. The vinyl will have a negative charge on it.
 - (b) Rub the charged vinyl strip over one of the insulated pop cans. Excess electrons from the vinyl will flow onto the can, giving the can a negative charge.
 - (c) Repeat the process several times, to make sure there is a lot of excess negative charge on the can.
3. Place a **positive charge** on the other can, as follows:
 - (a) Rub an acetate strip with cotton. This will make the acetate positively charged, since electrons flow from the acetate onto the cotton.
 - (b) Rub the acetate strip onto the second can. The positively charged acetate strip will attract electrons from the second metal pop can, making the can positively charged.
 - (c) Repeat this process several times to make sure the second can has ample positive charge.
4. ***Do not touch the metal cans!*** Move the cans toward each other, touching only their insulated Styrofoam bases, until the cans are about 3 cm apart.
5. Lower a graphite ball electroscope between the two oppositely charged cans. Write down what you see happening.

Concluding Questions

1. What charge was on:
 - (a) The first can (touched with a charged vinyl strip)?
 - (b) The second can (touched with a charged acetate strip)?
 - (c) The graphite ball *before it was lowered between the cans*.
2. Explain what happened to the graphite ball during the experiment. Describe what happened to the **electrons** going to and from the three objects involved. Why does the action eventually stop?

Part 2 Charging by Induction

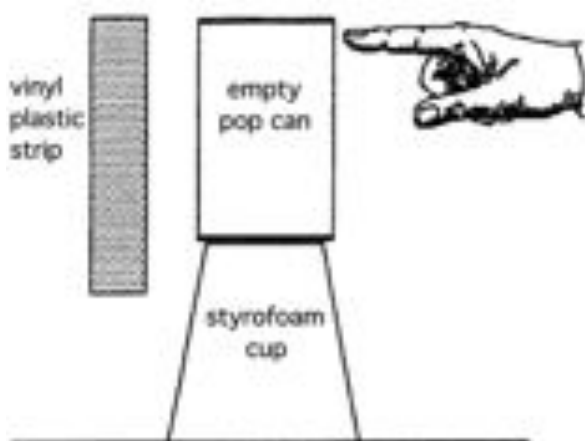


Figure 2

Imagine you have only a negatively charged strip, but you wish to place a positive charge on another object. If you *touch* the other object with the negatively charged strip, you will charge it negatively (by conduction). However, if you use a method called **induction**, you can give it a charge that is *opposite* to the charge on the charging body.

Procedure

1. Place a pop can on (or in) a Styrofoam cup.
2. Charge a vinyl strip negatively, by rubbing it with wool or fur.
3. Bring the vinyl strip *near and parallel to the pop can*, as in **Figure 2**, but *do not let the vinyl touch the can!*
4. *Briefly touch the can with your finger, and then remove it and the vinyl strip completely. **Predict** what charge is on the can.*
5. Work out a procedure to test for yourself whether the charge on the can is positive, negative or neutral. (Repeat **Procedures 2 to 4** several times, if necessary, to establish what actually happened.)

Concluding Questions

1. Before you brought your finger near the can,
 - (a) what charge was on the vinyl strip?
 - (b) what charge was on the side of the can near the vinyl strip?
 - (c) what charge was on the other side of the can?
2. Your finger can conduct electrons to or from your body. In this experiment, were electrons conducted to the can from your body, or from the can to your body?
3.
 - (a) What was the final charge on the can?
 - (b) Was this charge 'conducted' from the vinyl strip?
 - (c) How did the can obtain this charge?

A Message from Kamloops Exploration Group



Hi Everyone,

I hope that you are well! I am writing to see if you might be interesting in volunteering (for a day, partial day, few hours) at the end of September / beginning of October. I am involved with organizing a mining educational program in Kamloops called M4S (Mining 4 Society). It runs for three days, September 29th (Sunday – 12 – 5pm), September 30th (Monday – 9am – 3pm) and October 1st (Tuesday – 9am – 3pm). The Sunday event is open to the public and the 30th/1st are for school children, grades 5 -12. The M4S concept is to have different pavilions to represent the mining life cycle, and at each, there will be stations with activities (provided by companies, groups, or volunteers). M4S will be held at the Calvary Church Gym, 1205 Rogers Way in Kamloops.

We are looking for volunteers to help with various stations over the three days. If you have time to help out, please let myself, or Nicole Trudell (our volunteer coordinator) know – our contact information is at the bottom of the page. We would appreciate any time anyone has to help out with this event. We are quite excited about our response from the school system, we have 1400 students and teachers coming over those two days, and we anticipate about 400 attendees for the Sunday public event.

The dates and times of M4S are:

September 29th: noon – 5pm

September 30th 9am – 3pm

October 1st 9am – 3pm

Here's the various roles we are looking for:

YUKON DAN – we need 5 volunteers each day. I have volunteered with Dan previously and he is so much fun to work with. He will train you with what he needs you to do. If you have ever wanted to learn to goldpan, this is a fun opportunity to learn that skill.

PIGMENTS and ART that comes from Mining: **ARTIST**– we need someone with an artistic background to do some creative work (drawing/painting) and talking about how pigments used in many of artistic media come from mining.

1-2 additional volunteers required for this display

GT Ford – how your car comes from mining – 2 volunteers each day

LEGO / ROBOTIC RACES – 2 volunteers each day

BIRDSEED MINING – KEG – will require 1-2 volunteers each day

FLUORESCENT MINERAL DISPLAY – will require 2 volunteers each day

MINING CAREER DISPLAY (MiHR) & GAME – will require 2 volunteers each day (if you are able to talk about your career in the industry, or the opportunities around careers in the industry, would be wonderful.

RECLAMATION DISPLAY & GAME – 1 – 2 volunteers each day. Ideally, if there is someone who knows a bit more about reclamation and has worked in the industry in this area, we would appreciate your support.

PHOTO BOOTH – 2 volunteers each day. Help students get dressed in safety gear, and possibly help students take photos with their camera/phone

BIKE DISPLAY & DAILY PRODUCTS THAT COME FROM MINING – 2-3 volunteers each day.

BUS and PARTICIPANT GREETERS – 4 volunteers each day (30th and 1st only) to greet school buses and direct participants to activities, 2 volunteers on the 29th to greet the public for the day

FLOATERS – 2-4 general volunteers who can fill in any gaps we may have at pavilion activities.

If you are available to help with any of these positions on any of the three days, please let us know. We greatly appreciate any support and time you can give to the event. If you are able to volunteer for a full day, CIM will provide lunch that day for you.

For those who would like a little more information, M4S is run by CIM (Canadian Institute of Mining, Metallurgy, and Petroleum) and they have an affiliated conference happening in Kamloops at the same time, called MEMO (Maintenance Engineering / Mine Operators). The link for the M4S event is:

<http://memo2013.cim.org/Page/PageContent/Why-M4S>

If you have any questions about M4S or MEMO, please do not hesitate to contact us.

Thanks so much!

Royanna

M4S Chair – Kamloops 2013

Nicole Trudell (M4S Volunteer Coordinator – Kamloops 2013): Nicole.Trudell@kghm.com 250-374-5446

Lucie Vincent (M4S Project coordinator): lvincen@cim.org (514) 939-2710 ext. 1332

Royanna Wild (M4S Chair – Kamloops 2013): wildrock@shaw.ca 250-851-7688

Punography from the Internet

Forwarded by Connie Alger, Program Coordinator Early Childhood Education Diploma Program
Faculty of Human, Social & Educational Development Thompson Rivers University

I do not enjoy computer jokes. Not one bit.
I changed my iPod name to Titanic. It's syncing now.
When chemists die, they barium.
Jokes about German sausage are the wurst.
A soldier who survived mustard gas and pepper spray is now a seasoned veteran.
I know a guy who's addicted to brake fluid. He says he can stop any time.
How does Moses make his tea? Hebrews it.
I stayed up all night to see where the sun went. Then it dawned on me.
This girl said she recognized me from the vegetarian club, but I'd never met herbivore.
I'm reading a book about anti-gravity. I can't put it down.
I did a theatrical performance about puns . It was a play on words.
They told me I had type A blood, but it was A Type-O.
A dyslexic man walks into a bra.
Why were the Indians here first? They had reservations.
Class trip to the Coca-Cola factory. I hope there's no pop quiz.
Energizer battery arrested. Charged with battery.
I didn't like my beard at first. Then it grew on me.
How do you make holy water? Boil the hell out of it!
Did you hear about the cross-eyed teacher who lost her job because she couldn't control her pupils?
When you get a bladder infection, urine trouble.
What does a clock do when it's hungry? It goes back four seconds.
I wondered why the baseball was getting bigger. Then it hit me!
Broken pencils are pointless.
I tried to catch some fog. I mist.
What do you call a dinosaur with an extensive vocabulary? A thesaurus.
England has no kidney bank, but it does have a Liverpool.
I used to be a banker, but then I lost interest.
I dropped out of communism class because of lousy Marx.
All the toilets in New York's police stations have been stolen. Police have nothing to go on.
I got a job at a bakery because I kneaded dough.
Haunted French pancakes give me the crepes.
Velcro — what a rip off!
Cartoonist found dead in home. Details are sketchy.
Venison for dinner? Oh deer!
Earthquake in Washington obviously government's fault.
I used to think I was indecisive, but now I'm not so sure.
Be kind to your dentist. He has fillings, too.

ROBOTICS CLUBS

BIG Little Science Centre is pleased to announce our Fall lineup of *Girls Only* and *Boys Only* Robotics Clubs for 2013. This year we will have 2 sessions running over the course of the Fall.

These clubs are for beginners up to expert levels. You will be able to work at your own pace and to your own interests. Challenges and teaching will be provided over the sessions to encourage club members to learn and stretch their skills. As skills develop, new robot designs and more advanced programming will be introduced. Have you heard of *Alfa Rex*, *The Scorpion*, *The Tribot*? Join us to build a Mindstorms Robot. Program it to perform tasks and to solve challenges.

Thursdays will be Girls Only Robotics; the first session starts October 3 and runs until November 7 (with no session October 24); the second session runs November 14 to December 12.

Fridays will be Boys Only Robotics; the first session starts October 4 and runs until November 8 (with no session October 25); the second session runs November 15 to December 13.

Attached is the registration and consent form; ensure you sign up for the correct session(s). For children aged 10 and up. Each week the club starts at 2:45pm and runs to 4:30pm. Feel free to arrive any time after 2:30pm to get started. Cost is \$50 per full session; discount of \$5 if you are BIG Little Science Centre Members). Feel free to share this information with your friends.

Space is limited so join early. For more information give us a call at 250-554-2572 or email Gord@blscs.org

Remember BIG Little Science Centre moved at the start of July; we are now located at 655 Holt Street.

Looking forward to more awesome robots this Fall.

Sincerely,

Susan Hammond
Assistant Operator,
BIG Little Science Centre
250-554-2572
susan@blscs.org

New Location: 655 Holt Street, Kamloops, BC (Located in the former Twin Rivers / Happyvale School)

www.blscs.org, [Facebook](#), [Twitter](#), [YouTube](#)

Mailing Address: Box 882, Station Main, Kamloops, BC V2C 5M8

BIG Little Science Centre – Robotics Clubs for Girls and Boys
655 Holt Street (New Location)
2:45 pm to 4:30 pm

Sponsored by: New Gold, Watson Engineering, Year of Science, Telus

Registration and Consent Form Fall 2013

Name of Club Member: _____ Birth date: _____ Grade as of Sept 2013: _____

Medical Concerns (allergies, health issues, behavioral concerns, medication currently in use, other):

CARE Card #: _____ Doctor's Name: _____ Doctor's Phone #: _____

Printed name of Parents/Guardians: _____

Contact Phone Numbers: work: _____ home: _____ cell: _____

Address of Parents/Guardians: _____

Email address: _____

Local contact name, address and phone number if from out of town: _____

Name of Emergency Contact: _____

Emergency Contact Phone #'s: work: _____ home: _____ cell: _____

Address of Emergency Contact: _____

People allowed to pick up your child at end of day: _____

Please check one box per session of FALL 1 and / or FALL 2

Price

Please note that Thursdays are Girls Only and Fridays are Boys Only

- | | |
|--|---------|
| <input type="checkbox"/> Robotics– Girls FALL 1: October 3, 10, 17, 31, November 7: Thursdays | \$50.00 |
| <input type="checkbox"/> Robotics– Girls FALL 2: November 14, 21, 28, December 5, 12: Thursdays | \$50.00 |
| <input type="checkbox"/> Robotics– Boys FALL 1: October 4, 11, 18, November 1, 8: Fridays | \$50.00 |
| <input type="checkbox"/> Robotics– Boys FALL 2: November 15, 22, 29, December 6, 13: Fridays | \$50.00 |

Subtotal: _____

BLSC Members (\$5 per session)

Discount: _____

Total: _____

Method of Payment:

☐ Cheque ☐ Cash ☐ Debit ☐ Credit

Turn for page 2

Permissions

1. I hereby give permission to have pictures taken of my child in the program setting for general record-keeping.

Yes No

2. I hereby give permission to have pictures taken of my child in the program setting for publicity purposes, newsletters.

Yes No

3. In case of accident or illness, if a parent or guardian cannot be reached, we will take your child to the emergency ward of the nearest hospital. Signing the consent form gives your authorization for emergency health services.

The BIG Little Science Centre Robotics Club is preparing a variety of scientific projects and experiments for the members.

I, _____ (**name of Parent or Guardian**) understand that activities of this type expose the students participating to elements of risk. Accidents may occur while participating in these activities. The BIG Little Science Centre employees have been trained in both WCB Level 1 First Aid and Workplace Hazardous Materials Information System (WHMIS) courses. We will take all necessary and appropriate safety precautions and will attempt to minimize any associated risks. These accidents may cause injury. Examples of injury which may occur while participating in this type of activity include:

1. Sports related injuries from participating in games and activities.

2. Cuts from sharp objects or cutting utensils used.

3. Injuries resulting from improper use of a variety of chemicals.

Accidents can be a result of the nature of the activity and can occur without fault on either part of the student, of the BIG Little Science Centre Club Program or its employees or agents. By allowing your son/daughter to participate in this activity you are accepting the risk of accident occurring.

I give _____ (**name of club member**) permission to participate in the BIG Little Science Centre's Robotics Club.

The information in this application is correct and I am the parent or guardian of

_____ (**name of club member**). I hereby have read and agree to all terms and conditions on this application.

Parent/Guardian Signature: _____ Date: _____

Signed by Witness (19 years or older): _____ Date: _____

Printed name of Witness: _____

Address of Witness: _____

Registration requires the completion of both pages of this form and full payment.

DELIVER TO:

**BIG Little Science Centre located in Happyvale School
655 Holt Street, Kamloops, BC**

MAIL TO:

**BLSC Club Registration
PO Box 882, Station Main
Kamloops, British Columbia V2C 5M8**